

:00  
um so today jack and i are going to be  
0:02  
talking about dressing  
0:03  
coveted 19 vaccine misinformation online  
0:07  
i mean as eric mentioned um you know  
0:09  
jack and i we both are with critica  
0:11  
um jack has a background in psychiatry  
0:15  
and my background i'm an academic  
0:18  
hospitalist but  
0:19  
my phd is in sociology so  
0:22  
i'm very interested in the combination  
0:24  
of medicine and social science  
0:26  
particularly looking at communication  
0:28  
and i just want to thank the the  
0:29  
organizers of the columbia  
0:31  
coven 19 virtual symposium i think these  
0:34  
have been  
0:34  
uh fantastic and we're honored to  
0:36  
present here um  
0:38  
and i i hope this is uh this proves  
0:40  
useful for  
0:41  
for those of you working on this issue  
0:44  
so i just want to start very briefly by  
0:48  
mentioning who critica is so critica

0:51  
it's it was founded in 2016 after the  
0:54  
publication of denying to the grave  
0:56  
why we ignore the facts that will save  
0:58  
us this is a book by  
0:59  
jack and sarah gorman based on their  
1:03  
uh backgrounds in psychology and  
1:04  
psychiatry looking at some of the  
1:06  
psychological underpinnings  
1:08  
of science denial and the mission of  
1:11  
critic is to  
1:12  
improve the public acceptance of  
1:13  
scientific consensus  
1:15  
and counteract misinformation about  
1:16  
science and health  
1:18  
and increase the use of scientific  
1:20  
evidence in public policy making  
1:22  
we publish commentaries on social media  
1:25  
longer commentaries about three to four  
1:26  
times a month on our website  
1:28  
we also have a monthly newsletter we are  
1:31  
a non-profit  
1:32  
and currently our funding is primarily  
1:34  
from the robert wisconsin foundation

1:37  
so today we're going to talk about a  
1:39  
couple of things  
1:41  
but our goal primarily is to empower  
1:44  
clinicians and scientists  
1:45  
um to responsibly address copen19  
1:48  
vaccine misinformation  
1:50  
um there's a lot of misinformation out  
1:53  
there  
1:54  
and it's not something that will go away  
1:57  
by itself that's our belief and there's  
2:00  
a lot of evidence that clinicians and  
2:02  
scientists  
2:03  
carry a lot of trust in public and have  
2:06  
an opportunity and a responsibility  
2:08  
to responsibly counteract some of the  
2:11  
information that is that is circulating  
2:13  
so we're going to go over why clinicians  
2:16  
and scientists should do this  
2:18  
and talk about how what's important is  
2:20  
to recognize the setting  
2:23  
that you're in because the strategies  
2:24  
are different to combat misinformation  
2:26  
in each one

2:28  
and then in each setting we'll talk a  
2:30  
little bit about the method for  
2:31  
responding  
2:33  
before i start i just want to talk a  
2:35  
little bit about information disorder  
2:37  
and some of the terms that we'll use so  
2:39  
i use the term misinformation  
2:41  
because as you can imagine there's a  
2:42  
spectrum of misinformation all the way  
2:45  
to  
2:46  
bad kind of disinformation or mal  
2:48  
information  
2:49  
you can see in this chart it's you know  
2:52  
everything from like false connections  
2:54  
misleading content all the way to leaks  
2:56  
or harassment or hate speech  
2:58  
and the difference between a lot of  
2:59  
these is essentially the intent  
3:02  
whether or not someone intends to harm  
3:04  
or doesn't intend to harm  
3:06  
and often we don't know someone's intent  
3:08  
so it makes it very difficult to  
3:10  
try to label misinformation

3:12  
disinformation or mal information a  
3:14  
piori  
3:16  
so the category that i often use is  
3:17  
misinformation because that encompasses  
3:20  
uh almost all of this information  
3:22  
without  
3:23  
trying to imply the intent of the person  
3:25  
that's spreading it  
3:26  
because much misinformation is spread by  
3:28  
people who  
3:29  
don't necessarily know or don't care  
3:32  
whether or not the information that  
3:33  
they're spreading  
3:34  
is truthful but it's important to  
3:37  
recognize that  
3:38  
some of the campaigns out there are  
3:40  
actually disinformation  
3:42  
where people are intending to manipulate  
3:44  
the conversation  
3:45  
or have an agenda with the information  
3:48  
that they're spreading  
3:51  
so why should clinicians and scientists  
3:54  
do this

3:55  
so the first and most important issue is  
3:57  
trust so  
3:58  
the kaiser family foundation does  
4:00  
periodic surveys and they generally find  
4:02  
that trust in physicians is high  
4:04  
85 percent of respondents report that  
4:06  
they trust their own doctor or health  
4:07  
care provider at least  
4:09  
a fair amount for reliable vaccine info  
4:11  
and this is  
4:12  
even in the settings of people not  
4:14  
trusting doctors in general  
4:16  
they trust their own doctor scientists  
4:19  
also  
4:19  
kind of have a large role in society  
4:21  
they're they're very trusted  
4:22  
in many circles to society and obviously  
4:25  
i think this is something that has  
4:26  
become  
4:27  
more increasingly controversial with a  
4:29  
lot of the personal attacks against  
4:31  
anthony fauci  
4:32  
but overall scientists still are very

4:35  
well respected by journalists and and  
4:37  
most members of society  
4:39  
it's also important to recognize that  
4:40  
misinformation is rampant  
4:42  
what do i mean by that i think we've all  
4:44  
seen the mask debates  
4:46  
about hypoxia and whether or not they  
4:48  
work and a lot of this had to come about  
4:50  
because there was poor and delayed  
4:52  
messaging with  
4:53  
insufficient tailoring to people's  
4:55  
identity and their values  
4:57  
it's a bit of a missed opportunity in  
4:58  
public health messaging  
5:00  
there's also a lot of controversies  
5:02  
about you know whether or not gates is  
5:04  
trying to implant microchips in people  
5:05  
through the vaccine and the role that  
5:07  
5g played in uh  
5:10  
in in the epidemic um with people  
5:13  
thinking  
5:14  
essentially that conspiracies um are  
5:17  
driving some of these issues

5:18  
um these are these conspiracies are  
5:21  
highly prevalent  
5:22  
um because there's been little active  
5:24  
debunking of them  
5:26  
and i think for you know the clinicians  
5:28  
out there who've seen a lot of  
5:29  
uh discussion about the cure-all effects  
5:31  
of hydroxychloroquine and now  
5:33  
people are turning to ivermectin um  
5:36  
where a lot of this narrative has been  
5:37  
driven by  
5:38  
anecdotes and poor evidence um so this  
5:40  
information  
5:41  
it's spreading rapidly and it often  
5:43  
spreads faster than the truth can or  
5:45  
faster than science can keep up with it  
5:48  
so how can we address misinformation  
5:51  
step one  
5:52  
we really have to recognize the setting  
5:54  
because in the clinic  
5:56  
there's good evidence to suggest that  
5:57  
motivational interviewing is the best  
5:59  
strategy



6:01  
but online in in a public forum  
6:04  
we generally recommend to follow uh as  
6:07  
your starting point who guidance  
6:09  
which suggests a craft message is based  
6:11  
on the technique  
6:13  
that people are using to spread the  
6:14  
misinformation and the misinformation  
6:16  
topic and we'll go over that  
6:20  
so but first in the clinic i think right  
6:23  
now it's contentious and so i think  
6:25  
it might be understandable for people to  
6:27  
want to shy away from this issue  
6:30  
but arthur kaplan an nyu bioethicist  
6:32  
says that  
6:33  
doctors actually have a responsibility  
6:35  
to engage  
6:36  
um and that's that's not just engagement  
6:38  
but that's also  
6:39  
knowing and understanding some of the  
6:40  
prevailing misinformation  
6:42  
to be able to uh be informed enough to  
6:45  
counteract it uh when you're seeing  
6:48  
patients

6:49  
it's also important to be able to ask  
6:51  
about risky behaviors  
6:52  
we do this a lot as physicians we ask  
6:55  
about whether or not people wear seat  
6:56  
belts if they have a gun in the house  
6:58  
um you know do they do they smoke do  
7:00  
they drink  
7:02  
so asking whether or not they're wearing  
7:03  
a mask or their intentions to vaccinate  
7:05  
can be very important  
7:07  
and it allows you to open the discussion  
7:10  
in a non-threatening way  
7:13  
so the evidence for motivational  
7:16  
interviewing  
7:16  
and vaccine hesitancy is growing  
7:18  
stronger and stronger  
7:21  
in quebec there's a researcher named  
7:24  
arnold gagyar  
7:26  
who has developed a program called  
7:27  
program emi  
7:29  
which is a french acronym that stands  
7:31  
for motivational interviewing and labor  
7:32  
and delivery for childhood immunization

7:35  
they've done a number of randomized  
7:37  
trials to show that  
7:39  
motivational interviewing can reduce  
7:41  
vaccine hesitancy by 40 percent  
7:44  
and it has increased both the intention  
7:46  
to vaccinate  
7:47  
and the number of children who are up to  
7:49  
date on their vaccine schedule  
7:51  
at six months so the province of quebec  
7:54  
is actually  
7:55  
fully invested in this program program  
7:57  
emi  
7:58  
and there are currently studies about uh  
8:00  
across canada to see whether or not it  
8:02  
should be implemented nationwide  
8:05  
in the united states there's a smaller  
8:08  
effort on motivational interviewing  
8:10  
but there is some data being run by  
8:12  
patrick o'leary out of the university of  
8:14  
colorado  
8:14  
where he has a program called adapting  
8:17  
mi  
8:18  
for maternal immunization or mi4 mi for

8:21  
short  
8:22  
this it's this is in progress nothing's  
8:25  
been published except the protocol  
8:27  
and it draws on his preliminary work  
8:30  
that has shown some success in using  
8:31  
motivational interviewing for  
8:33  
increasing hpv vaccine uptake  
8:38  
so there's other evidence for addressing  
8:41  
this information  
8:42  
and drawing from social science  
8:44  
literature which is  
8:45  
vast on this issue there are some  
8:47  
lessons that we can glean  
8:49  
uh one is that respective demonstrating  
8:52  
kind of a respectful understanding of  
8:54  
values fears and beliefs is very  
8:56  
important establishing a common ground  
8:58  
with the people that you're discussing  
9:01  
that doesn't necessarily mean supporting  
9:02  
conspiracy theories  
9:04  
but a lot of times a conspiracy theory  
9:06  
or some other  
9:07  
concern has a basis in a value

9:11  
that we all share such as wanting to  
9:13  
protect our children  
9:15  
uh it's important to be mindful of  
9:18  
knowledge deficits versus identity-based  
9:20  
cognition  
9:22  
what i mean by that is there are times  
9:24  
when  
9:25  
it's a simple knowledge deficit that  
9:27  
someone just doesn't know something  
9:28  
about  
9:29  
a vaccine or a safety issue  
9:32  
in which case it's very reasonable just  
9:34  
to provide some facts to fill that  
9:36  
knowledge deficit  
9:37  
but sometimes the resistance that  
9:40  
someone might have towards vaccinations  
9:42  
is a little bit more psychologically  
9:44  
deep rooted  
9:45  
and can be based in their identity you  
9:48  
can imagine  
9:49  
a new mother who uh spends a lot of her  
9:51  
time with  
9:52  
with other new mothers who uh is on

9:54  
facebook groups  
9:56  
um with new mothers where a lot of  
9:58  
information is being shared  
9:59  
about anti-vaccination sentiment uh she  
10:02  
might be a part of anti-vaccine groups  
10:04  
or vaccine questioning groups  
10:06  
and there might actually be some peer  
10:08  
pressure on those groups not  
10:09  
not to vaccinate so if a patient like  
10:12  
that comes into the clinic  
10:14  
simply providing facts is not  
10:17  
necessarily gonna work in a situation  
10:19  
where  
10:19  
uh she's wondering about her place in  
10:22  
this  
10:22  
uh online imagined community that she  
10:26  
has developed with all of her all of her  
10:27  
friends that are going through some of  
10:29  
the things that she's going through  
10:30  
and so being able to address someone  
10:33  
like that who's  
10:34  
who has a lot of other pressures outside  
10:36  
of the clinic

10:37  
simply with facts is probably not going  
10:39  
to be as effective as  
10:40  
um engaging in some other ways and it's  
10:43  
a much  
10:44  
longer term prospect than just providing  
10:46  
some facts  
10:48  
so being able to distinguish between  
10:49  
knowledge deficits and other types of  
10:51  
cognition  
10:51  
that could be um stymieing somebody's  
10:55  
ability to be more receptive of a  
10:57  
vaccine is very important  
11:00  
there's also data to suggest that  
11:02  
corrections from peers  
11:04  
are more likely to change opinions also  
11:06  
corrections from  
11:07  
respected authorities and  
11:10  
respected authorities also include  
11:13  
people that carry a lot of respect  
11:14  
whether or not they're authorities such  
11:16  
as celebrities  
11:17  
um addressing common difficulties uh  
11:20  
with probability and contradictory

11:22  
evidence  
11:22  
these are things that are hard even for  
11:24  
scientists and doctors and so it's not  
11:26  
surprising when  
11:28  
people out in the public sometimes  
11:30  
misunderstand or don't  
11:31  
get these exactly correct  
11:35  
it's also important for us to anticipate  
11:37  
misinformation encounter it immediately  
11:40  
and respectfully  
11:41  
the sooner misinformation is corrected  
11:44  
the  
11:44  
less of an impact that it seems to have  
11:48  
and for those that do have conflicts of  
11:49  
interest it's important to be  
11:50  
transparent about them  
11:52  
and explain your strategy for working to  
11:53  
minimize their influence  
11:56  
otherwise it can this is something that  
11:57  
can sow a lot of distrust if conflicts  
11:59  
of interest are found out later  
12:02  
so in addressing misinformation online  
12:06  
we generally recommend to follow who



12:08  
guidance  
12:09  
so the european office of the world  
12:11  
health organization has produced a  
12:12  
document called  
12:13  
best practice guidance how to respond to  
12:15  
vocal vaccine deniers in public  
12:18  
um it's an excellent document i  
12:20  
recommend anyone who's interested  
12:21  
or thinking about doing any of this kind  
12:23  
of work to to give it a very thorough  
12:25  
read  
12:26  
um and we'll just summarize a couple of  
12:28  
brief points here  
12:29  
one of the major points though is  
12:32  
remembering who your audience is because  
12:35  
there's little evidence  
12:37  
that you'll be able to change the mind  
12:38  
of a committed anti-vaxxer  
12:40  
in that public forum in one setting um  
12:44  
instead your engagement uh even if  
12:46  
you're engaging with an anti-vaxxer is  
12:48  
actually  
12:49  
the people on the sidelines it's at the

12:51  
undecided and those who are on the fence  
12:53  
that are  
12:54  
maybe silent but they're they're  
12:56  
watching and so  
12:57  
a lot of that conversation is less um  
13:00  
you know  
13:01  
if you're trying to decide if it's  
13:02  
successful or not it has less to do with  
13:04  
trying to  
13:04  
convince the iconoclast and more about  
13:08  
kind of having respectful  
13:09  
discussion that just makes sure that you  
13:11  
know misinformation is rebutted  
13:13  
and you know reasonable questions and  
13:15  
concerns are answered  
13:18  
so in this who guidance they suggest a  
13:21  
pathway which is first to identify the  
13:23  
topic  
13:23  
because once you start digging into  
13:25  
misinformation you'll recognize a lot of  
13:27  
it you've probably heard a lot of these  
13:28  
things before  
13:29  
such as you know we don't know the

13:30  
long-term side effects some people say  
13:33  
it's better to just  
13:34  
get coveted and find it off naturally  
13:37  
some people say you have concerns that  
13:39  
pharma just wants to make money  
13:41  
covet isn't a big deal you know a lot of  
13:43  
concerns that  
13:44  
warp speed meant that this was rushed  
13:47  
and unsafe  
13:49  
that the vaccine isn't working because  
13:51  
it doesn't stop  
13:52  
transmission or you know other types of  
13:56  
theories that the government just wants  
13:57  
to control you  
13:58  
concerns about freedom a lot of concerns  
14:01  
about anaphylaxis  
14:02  
given all of the headlines or again  
14:04  
other conspiracies such as gates wants  
14:06  
to track you with micro  
14:07  
microchips now we've heard a lot of  
14:10  
these different  
14:11  
topics um putting them in buckets can be  
14:14  
helpful because rather than debunking

14:16  
each individual point  
14:17  
sometimes it's important just to note  
14:19  
the concern it's like  
14:21  
oh someone might be concerned about the  
14:22  
threat of the disease  
14:24  
what alternatives there might be out  
14:25  
there just general  
14:27  
issues of trust effectiveness of the  
14:29  
vaccine  
14:30  
or safety and a lot of these are  
14:32  
understandable concerns  
14:35  
and when we start to put these in  
14:37  
buckets we can start to address rather  
14:38  
than  
14:39  
the each individual point we can address  
14:41  
the issues  
14:42  
that are underlying a lot of the points  
14:45  
and  
14:46  
after identifying the topic it's  
14:47  
important to identify the technique  
14:49  
and you'll see a lot of different  
14:51  
techniques that generally fall under  
14:53  
five buckets which are conspiracy

14:55  
theories  
14:56  
selectivity uh cherry picking uh  
15:00  
particular evidence relying on fake  
15:02  
experts  
15:03  
uh such as you know hand picking one or  
15:05  
two physicians or experts in  
15:08  
supposed experts in a field who have a  
15:10  
particular opinion that that might  
15:12  
be worthy of debate but often people are  
15:14  
holding that up  
15:15  
as a talisman as as truth  
15:19  
misrepresentation and false logic a lot  
15:22  
of this can also just be  
15:23  
misunderstanding  
15:24  
as people don't necessarily understand  
15:27  
the science behind some of the things  
15:28  
that they are  
15:30  
promoting or talking about or having  
15:33  
impossible expectations  
15:35  
especially differential expectations i  
15:38  
see a lot of situations where people  
15:41  
you know complain that the vaccine isn't  
15:43  
100 effective

15:45  
but then promote other treatments that  
15:47  
are even less effective than a 95  
15:49  
effective vaccine  
15:52  
so these techniques combined with the  
15:55  
topics  
15:56  
can be very powerful so um  
16:00  
designing your answer comes down to  
16:02  
taking what you see from the  
16:05  
the technique the response to the topic  
16:07  
and then designing a concomitant answer  
16:10  
there's a lot of examples that i think  
16:12  
are fantastic in the who document  
16:14  
i'm just going to mention one here just  
16:16  
to give a sense of what we're talking  
16:18  
about  
16:20  
uh this example came from uh this week  
16:22  
uh  
16:23  
having a debate on facebook with a  
16:25  
friend of mine from high school  
16:27  
he said it being the vaccine he said the  
16:30  
vaccine is also genetically modifying  
16:32  
you to produce part of the virus  
16:34  
have you heard about the alternatives

16:35  
though there's a natural enzyme that has  
16:37  
shown amazing impacts not only  
16:38  
rna viruses but also cancer a near  
16:41  
cure-all  
16:42  
and my mom is an expert in medicine and  
16:44  
i talked to her about things and  
16:45  
he went on it was it was quite a long  
16:48  
discussion  
16:48  
that he uh had a lot of things that he  
16:51  
was addressing  
16:52  
and it could be overwhelming to think  
16:54  
that you know trying to debunk  
16:56  
point by point by point so there's a lot  
16:58  
of things going on here  
16:59  
what i noticed is it talks about things  
17:01  
being genetically modified  
17:03  
you know this maybe he has some concerns  
17:05  
about vaccine safety but it seems to  
17:07  
suggest  
17:07  
that he has a knowledge deficit because  
17:10  
he understands that the vaccine is  
17:12  
is inducing you to produce a part of the  
17:14  
virus but thinks that it's genetically

17:16  
modifying you to do that  
17:18  
he also mentions a near cure-all which  
17:20  
suggests he's interested in alternatives  
17:22  
but it also suggests he's setting  
17:24  
impossible expectations  
17:25  
no no vaccine can compete with a  
17:29  
a quote-unquote near cure-all he also  
17:32  
mentions  
17:32  
his mom as an expert now i have nothing  
17:36  
against mom's many moms our experts my  
17:37  
mom  
17:38  
she is an organic chemist she's an  
17:40  
expert in organic chemistry  
17:42  
i happen to know his mother his mother  
17:44  
works in marketing  
17:45  
and is not an expert in medicine so the  
17:47  
fact that he's  
17:48  
calling on his mom as an expert in  
17:50  
medicine i found to be quite suspect  
17:52  
um so what did i do so i responded  
17:56  
first by addressing what i thought to be  
17:58  
the knowledge deficit and i said the  
17:59  
vaccine is not genetically modifying you



18:02  
that would imply it's changing your dna  
18:04  
it cannot and does not do that  
18:06  
but then rather i don't want to you know  
18:08  
i don't want to tear down his mom this  
18:10  
is this is not about his mom but this is  
18:12  
a question of  
18:13  
who is an expert what makes an expert so  
18:15  
i tried to refocus the conversation on  
18:16  
kind of the bigger picture  
18:18  
issue and just let's talk about  
18:20  
expertise  
18:21  
you raise an interesting question about  
18:23  
expertise what makes an expert  
18:24  
to me an expert is more than just  
18:26  
knowledge anyone can google things but  
18:28  
it also  
18:29  
it is also knowing how to judiciously  
18:31  
weigh primary evidence  
18:32  
evidence against other competing  
18:34  
evidence with as little bias as possible  
18:36  
many of the people who say do your own  
18:38  
research seem to struggle with that  
18:40  
but people who demonstrate being able to

18:42  
weigh the totality of the evidence with  
18:44  
little bias  
18:45  
are the people i turn to when i have  
18:46  
questions  
18:48  
so you know i think there's a lot of  
18:50  
potential responses to what my friend  
18:51  
was saying on facebook  
18:53  
um but this was just my example and  
18:56  
so but i was using the techniques of you  
18:59  
know  
18:59  
addressing the the topic and the  
19:01  
technique um  
19:03  
and and i've i have found that to be  
19:05  
helpful in uh combating misinformation  
19:08  
and this is what we use at critica in a  
19:11  
protocol that we're currently developing  
19:12  
with the annenberg  
19:13  
public policy center to combat  
19:15  
misinformation about the covert vaccine  
19:17  
more widely  
19:19  
um i also recommend turning to that who  
19:22  
document which has a lot of other  
19:24  
examples in addition to this one

19:27  
so in conclusion i just want to mention  
19:30  
that our our goal  
19:31  
again is is to empower you as clinicians  
19:34  
and scientists  
19:35  
to responsibly address kobit 19  
19:38  
vaccine misinformation  
19:41  
but remember that the response depends  
19:43  
on the setting  
19:45  
in the clinic motivational interviewing  
19:47  
has shown to be the most  
19:48  
evidence-based approach whereas online  
19:52  
uh you know it's a little bit more of a  
19:53  
mess but uh following who who guidance  
19:57  
is a good start  
19:58  
and again i do recommend this document  
20:00  
as as something to to read through  
20:03  
because one of the most important things  
20:04  
and you might have seen this online is  
20:06  
that some some doctors are engaging in  
20:08  
in ways that can be uh disrespectful and  
20:12  
um condescending and while that can make  
20:15  
us  
20:16  
feel good as you know physicians or

20:18  
scientists we have  
20:19  
superior knowledge or it might seem  
20:20  
funny to us  
20:22  
the challenge with that is you know if  
20:24  
we remember that our audience is  
20:25  
actually  
20:26  
not the committed anti-vaxxer but those  
20:28  
on the fence um  
20:30  
that type of behavior can be can be  
20:31  
alienated  
20:33  
and so you know overall we just we very  
20:35  
much recommend kind of a respectful  
20:37  
engaged dialogue calling out  
20:39  
misinformation when you see it  
20:40  
and following that who guidance  
20:44  
so obviously this is just a start and  
20:46  
this is a very big issue  
20:48  
but i would like to open it up for  
20:51  
questions and thoughts  
20:52  
and for those of you that are interested  
20:54  
in this please feel free to contact  
20:56  
me at david criticalscience.org  
21:00  
or at my cornell email below um

21:03  
and you can visit us at  
21:04  
[criticascience.org](http://criticascience.org)  
21:06  
so now i'd like to open it up to to jack  
21:08  
and i for  
21:09  
any questions that you might have  
21:13  
thank you thank you david um that was  
21:15  
you know really a great start  
21:18  
to the the 2021 um seminar series i i'd  
21:22  
like to actually start with a question  
21:25  
um hopefully i don't get my terminology  
21:27  
wrong  
21:29  
if you think about the population of  
21:30  
folks that pre-coveted were  
21:34  
you know committed anti-vaxxers versus  
21:37  
vaccine hesitant have those numbers  
21:40  
changed postcovid for for both  
21:44  
categories of people or do we do we have  
21:46  
enough information to know that  
21:50  
eric that's a good question um and what  
21:53  
i would say is the  
21:54  
uh so the kaiser fender kaiser family  
21:56  
foundation  
21:57  
does a lot of surveys essentially

21:59  
monthly tracking vaccine hesitancy and  
22:01  
vaccine resistance  
22:03  
and what's interesting is um is it is  
22:06  
it is constantly changing in the sense  
22:09  
that there's always  
22:10  
a cohort of people that are very  
22:12  
committed uh anti-vaxxers  
22:14  
and there were a lot of worrisome signs  
22:17  
uh kind of  
22:18  
early in the fall about a lot of people  
22:19  
who said that they weren't going to take  
22:21  
a vaccine  
22:23  
what we've seen is as the vaccine has  
22:24  
started to roll out  
22:26  
and there's more and more experience  
22:27  
with it close to 10 million people have  
22:29  
been vaccinated already in the united  
22:31  
states  
22:31  
there's been a shift um between number  
22:34  
of people who said that they  
22:35  
were were very hesitant and wouldn't  
22:38  
take it and who are actually a lot more  
22:39  
accepting of that

22:41  
i think we still have a lot of work to  
22:42  
go um  
22:44  
in terms of your specific question of  
22:45  
whether or not the exact population of  
22:47  
anti-vaxxers has kind of grown larger  
22:50  
that's not clear um i it seems to  
22:54  
because there's does seem to be kind of  
22:55  
a movable middle  
22:56  
um that as the data is coming out that  
22:59  
the vaccine seems to be safe so far  
23:01  
uh in the vast majority of cases more  
23:04  
and more people as that anecdotal  
23:05  
evidence is spreading around  
23:06  
seem to be a lot more open to a vaccine  
23:10  
thank you um do we have any questions  
23:13  
um from the audience uh  
23:17  
so there's a couple of questions here in  
23:18  
the q a yeah we'll we'll get to those  
23:21  
two um  
23:22  
great actually if the q and a folks can  
23:24  
raise their hands it might make  
23:25  
things a little easier um so stuart  
23:29  
feierstein

23:29  
um you should be able to talk if you  
23:31  
unmute yourself  
23:33  
okay yes can you  
23:36  
hear me i hope yeah we hear you okay  
23:38  
great um  
23:39  
yeah i just wanted to point out i i  
23:41  
thought another thing about the  
23:43  
misinformation issue that i think i  
23:45  
found at least occasionally to be  
23:46  
effective  
23:47  
in things that i've written and talked  
23:48  
to people that not only  
23:50  
if you will debunking misinformation or  
23:52  
addressing misinformation but providing  
23:54  
better information  
23:56  
at the same time is helpful so for  
23:57  
example people who are worried about  
24:00  
genetic modification by injecting rna  
24:02  
from the vaccine  
24:04  
you could point out that the virus  
24:05  
itself injects 12 genes  
24:07  
into you and so that's far worse in fact  
24:10  
than getting a single gene injected



24:13  
which can't incorporate in your dna  
24:15  
anyway  
24:16  
so i think things like that or the bill  
24:18  
gates issue i point out to people that  
24:20  
well if you're  
24:21  
if you're using google maps and you're  
24:23  
already on facebook then bill gates  
24:24  
doesn't need to know any more about you  
24:26  
than what he already knows you know  
24:30  
so i think i think providing new  
24:32  
information is as good as also or as  
24:34  
as important as um as  
24:38  
correcting misinformation thank you for  
24:41  
that comment i i agree especially if  
24:43  
that new information comes from a  
24:45  
trusted source  
24:46  
and sometimes who are trusted sources  
24:49  
depends on your audience  
24:50  
there's a lot of anti-government  
24:52  
sentiment right now and so sometimes  
24:55  
you know linking to cdc sources might  
24:57  
not always be  
24:59  
the most trusted source depending on who

25:00  
you're working with but i  
25:02  
in general i very much agree with you  
25:03  
and and it's  
25:05  
it's often a matter of kind of finding  
25:07  
the trusted source and the right  
25:09  
information to provide  
25:10  
thanks for that thank you stuart  
25:14  
um so i'll read one of the questions  
25:17  
from the the q a box  
25:19  
um this is coming from charlotte wayne  
25:22  
who asks what is your go-to answer when  
25:25  
someone brings up a conspiracy theory  
25:28  
that you haven't heard of do you dig  
25:30  
into the content of it  
25:33  
it's a great question so you know we  
25:34  
train  
25:36  
people to do these online interventions  
25:39  
and we have a system set up where  
25:42  
something comes up that we haven't heard  
25:44  
of before  
25:46  
we have a system set up for them to be  
25:48  
able to get information  
25:49  
very quickly from either

25:53  
david myself or vaccinologists who we  
25:56  
have consulting with us  
25:58  
to try to fill in that knowledge gap but  
26:00  
it's true i think with the implication  
26:02  
of your question that sometimes  
26:03  
you can't get to that fact right away  
26:06  
and so we have to use some general  
26:08  
responses to conspiracy theories which  
26:10  
in general conform to a few standard  
26:13  
principles  
26:15  
and we can often point out to that for  
26:18  
example by saying  
26:20  
gee can you imagine that many people  
26:23  
in secret getting together so quickly  
26:26  
to do what you say they could do because  
26:29  
almost all conspiracy theories are based  
26:31  
on  
26:32  
something that's we know is basically  
26:34  
impossible  
26:35  
so we try to have both general  
26:36  
categories and then also to dig into the  
26:38  
answer  
26:39  
very quickly

26:42

um we have a question from carol troy

26:46

so carol you should be allowed to talk

26:49

if you unmute yourself

26:54

are you there carol

26:58

perhaps not i'll leave her unmuted or

27:03

she can talk if she decides but there's

27:04

one more question in the q a that i'll

27:06

i'll

27:07

ask and that is sometimes science does

27:10

not have an

27:11

answer yet and temporary ambiguity might

27:16

lead to the spread of misinformation or

27:18

politic politization in science and

27:21

how do you address that answer when

27:23

there's not or that problem and there's

27:25

not

27:25

a a solid answer to something yet well

27:28

that's a great question and certainly

27:30

there are a

27:31

lot of evidence that uncertainty is one

27:34

of the biggest drivers

27:36

for false beliefs

27:39

and we see this right now

27:43  
an example right now are people who are  
27:45  
saying  
27:46  
why have the vaccine when uh people say  
27:49  
we start to wear a mask  
27:51  
and social distancing even after you get  
27:52  
the vaccine and that's because  
27:55  
we don't actually know for sure yet  
27:57  
whether it's transmitted  
27:59  
even if you get vaccinated where there's  
28:01  
still asymptomatic transmission  
28:03  
and so our answer to that is twofold  
28:05  
first of all  
28:06  
to absolutely acknowledge that science  
28:09  
never has all the answers  
28:10  
right away and so we  
28:14  
sort of bond with that person that there  
28:16  
is uncertainty  
28:18  
and that's the way science works uh we  
28:20  
think with that gives us  
28:22  
an ability then to point out that  
28:24  
scientists are working on that question  
28:26  
and here's what we do know and we always  
28:28  
then go to here's what we do know

28:30  
we do know that the vaccine prevents it  
28:33  
almost everybody  
28:35  
getting symptomatic illness getting sick  
28:37  
with covet 19  
28:39  
and we should know soon whether it also  
28:42  
prevents asymptomatic transmission  
28:45  
that'll just take a little bit longer  
28:47  
but for right now definitely have the  
28:49  
vaccine because  
28:50  
if you do there's a very very good  
28:53  
chance that you won't get sick with  
28:55  
covet 19.  
28:56  
so we start by acknowledging the  
28:58  
uncertainty science doesn't always have  
29:00  
the answers  
29:01  
right away but here's what we do know